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Letter to the Editor

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Efficacy of thoracic sympathectomy in the treatment of hyperhidrosis and management of compensatory sweating

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Dear Editor,

The effectiveness of thoracic sympathectomy in treating hyperhidrosis and the subsequent management of compensatory sweating (CS) warrants significant attention. Hyperhidrosis, characterized by excessive sweating, can significantly impair patients' quality of life, affecting both their personal and professional lives. Thoracic sympathectomy has proven to be a highly effective surgical intervention for this condition, although it is often associated with the side effect of CS.

Several studies have highlighted the benefits and challenges associated with thoracic sympathectomy. For instance, Yamamoto and Okada address the management of CS that occurs after endoscopic thoracic sympathectomy (ETS), a common treatment for localized hyperhidrosis. ETS generally involves resection of the sympathetic trunk or ganglia between the second and sixth ribs, but can lead to excessive sweating on the back, chest, and abdomen, known as compensatory sweating. The study utilized laser speckle flowgraphy (LSFG) to identify the sympathetic nerves associated with CS and performed ganglionectomy based on these findings. In all eight patients treated, compensatory sweating was resolved after the targeted sympathetic nerves were interrupted. The results demonstrate that CS is not a physiological response but is caused by denatured sympathetic nerves affected by ETS. With LSFG, the sympathetic nerve responsible for sweating in various body parts can be identified, making the treatment of compensatory sweating feasible.[1] This finding challenges the long-held belief that CS is untreatable and opens new avenues for managing this side effect.

Ravendran et al.[2] conducted a comprehensive review on the application of robotic sympathectomy in the treatment of hyperhidrosis, a condition marked by excessive sweating due to hyperactive sweat glands. The review systematically compared the clinical outcomes, complication rates, and inherent advantages and disadvantages of robotic sympathectomy relative to more conventional surgical approaches, such as video-assisted thoracic sympathectomy (VATS). The analysis of nine studies revealed that robotic sympathectomy not only yields outcomes comparable to those of traditional methods but also appears to mitigate the incidence of CS. This reduction in CS is likely attributable to the superior dexterity and enhanced visualization afforded by robotic systems, which enable more precise and controlled interruption of the sympathetic chain. Such precision may reduce the extent of unintended nerve damage, thereby improving the management of CS postoperatively. However, despite these potential benefits, the review highlighted significant barriers to widespread adoption, including the high costs associated with robotic systems, prolonged setup times, and the need for specialized surgical training. The authors concluded that while robotic sympathectomy holds promise, further research is required to thoroughly evaluate its long-term efficacy and broader applicability in the clinical setting.

Huang et al.[3] conducted a comparative study on the efficacy and safety of thoracoscopic T3 and T4 sympathectomy for treating primary hyperhidrosis focused on hand sweating. The study included 192 patients divided into T3 and T4 groups, each undergoing thoracoscopic bilateral sympathectomy. Results indicated that both T3 and T4 sympathectomy were effective in improving sweating symptoms. However, the incidence of CS was lower in the T4 group, particularly at the 12-month follow-up, compared to the T3 group. Additionally, patients in the T4 group reported higher satisfaction rates and lower incidences of palm dryness, although they experienced more palm moisture. This study suggests that lowering the sympathetic chain resection plane (T4) can enhance patient satisfaction and reduce long-term CS, making it a preferable approach for treating severe hand sweating.

Loizzi et al.[4] conducted a systematic review to evaluate the surgical management options for CS, a common and distressing side effect of ETS for treating primary hyperhidrosis. The review focuses on three main surgical techniques: unclipping, extended sympathectomy, and sympathetic nerve reconstruction. The study highlights that the incidence of CS can reach up to 98%, significantly

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affecting patients' quality of life. The effectiveness of unclipping was variable, with satisfaction rates ranging from 25% to 89%. Extended sympathectomy, including lower levels of the sympathetic chain, showed promising results with satisfaction rates from 45% to 100%. Sympathetic nerve reconstruction, though complex and resource-intensive, also demonstrated potential, with a 72.5% satisfaction rate among patients. The review concludes that while these surgical techniques offer some relief, the outcomes are inconsistent, and there is no universally effective solution for CS. Patients should be well-informed about the potential risks and benefits of these treatments.

Hamilton et al.[5] conducted a prospective, controlled, randomized multicenter study designed to evaluate and compare the severity of CS following two surgical approaches: one-stage bilateral thoracic sympathectomy (BTS) and unilateral thoracic sympathectomy (UTS) on the dominant side for the treatment of palmar hyperhidrosis. The study enrolled 200 participants who were randomly assigned to either the BTS or UTS group. At the six-month mark, participants in the UTS group were given the option to undergo a contralateral surgery, thus forming a third group that underwent two-stage bilateral sympathectomy. The severity of sweating was assessed using the Hyperhidrosis Disease Severity Scale (HDSS), while the quality of life was measured using the HidroQOL and Horn questionnaires. Preliminary data from 96 participants indicated that both groups exhibited comparable HDSS and quality of life scores, with no statistically significant difference in the severity of CS between the groups. These findings suggest that neither UTS nor staged BTS offers a substantial advantage over one-stage BTS in reducing CS severity. The study highlights the need to explore alternative surgical strategies or adjunctive therapies to improve the management of CS in patients undergoing sympathectomy for palmar hyperhidrosis.

Keywords: Thoracic sympathectomy, hyperhidrosis, compensatory sweating

CONCLUSION

Thoracic sympathectomy is an effective treatment for hyperhidrosis, significantly improving patients' quality of life. However, managing CS remains a challenge. Recent studies have shown promising results with techniques like laser speckle flowgraphy and targeted ganglionectomy, as well as comparisons of robotic sympathectomy and different thoracic sympathectomy levels. These advancements suggest new strategies for reducing CS and enhancing patient satisfaction, though further research is needed to confirm their long-term efficacy.

ETHICAL DECLARATIONS

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

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Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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